

Burden of chronic skin diseases in Singapore:

The way forward in the era of Big Data

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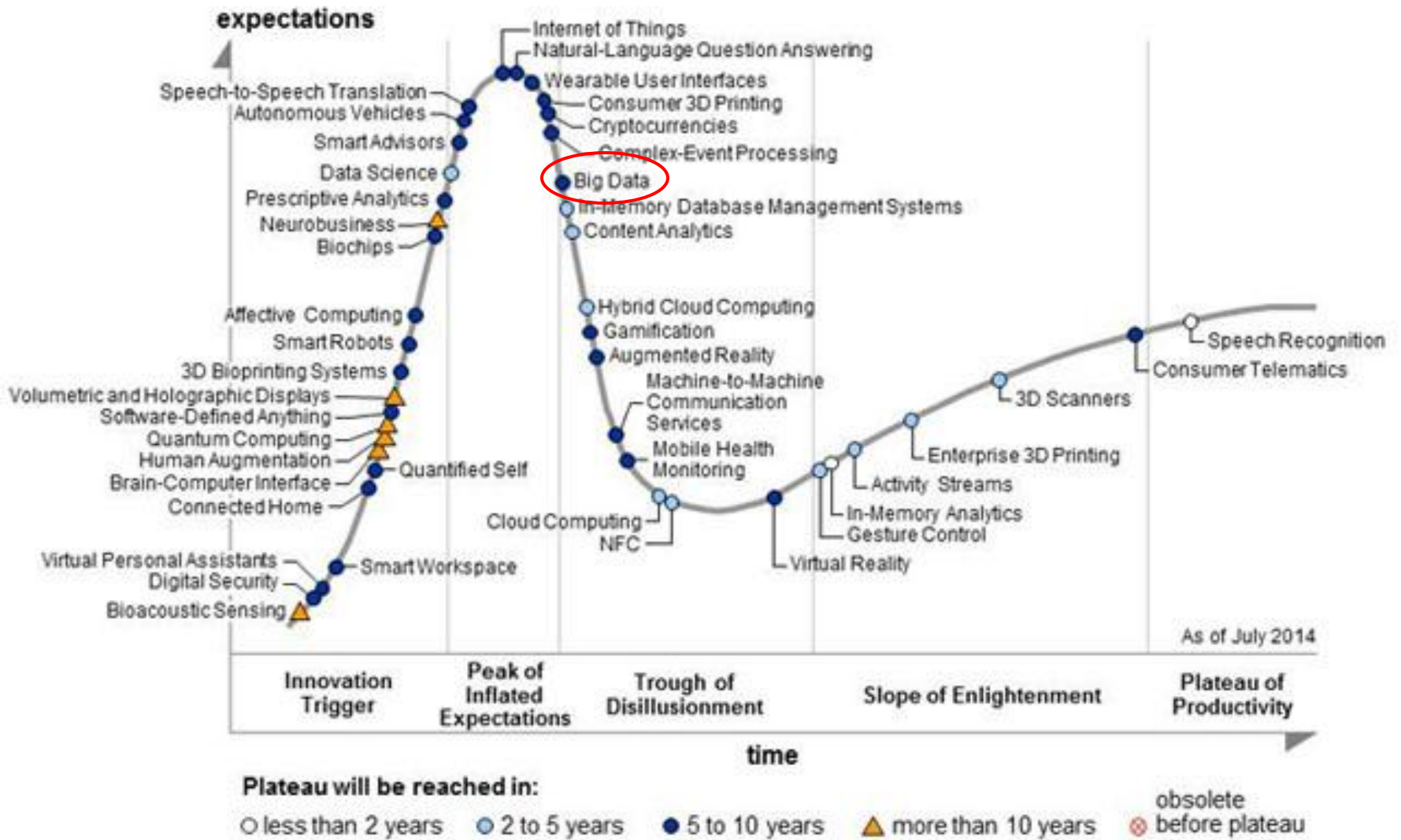
Outline

- Big Data Era
- Burden of skin diseases
- Databases
- “Pain points”/needs
- Wishlist



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Google



amazon



Instagram

Big Data Revolution

- Medicine
- Financial Sector
- Insurance industries
- Farms
- Retail and fashion
- Customer relationships
- Weather and Energy

Shift in the data era of medicine

Intuition &
opinion



Pattern
recognition
in data &
Predictors

Current applications in medicine

Collecting
data

Telemedicine

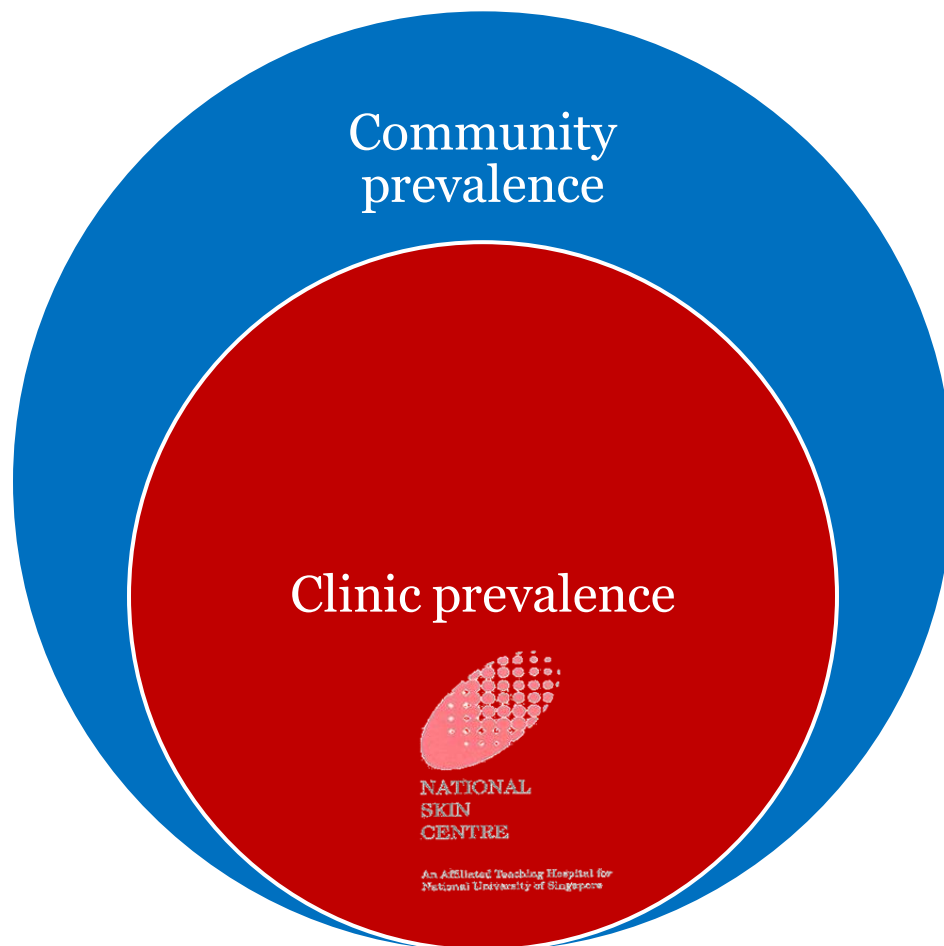
Innovating
with data



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Burden of skin diseases



National Skin Centre

- Largest tertiary skin institute in Singapore.
- Electronic medical records since 2004.
- Sees about >1,000 patients a day.



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Photo: NSC

NSC Vesalius

- Patient demographics (Age, gender, race, etc)
- Free text consult
- Diagnosis codes
- Laboratory results
- Prescriptions
- Treatment/Procedure records



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Databases/Large longitudinal cohorts

- Physician Health Study (PHS)
- Nurses Health Study (NHS I & II)
- National Health and Nutrition Examination Survey (NHANES)
- Vaccine Adverse Event Reporting System (VAERS)
- Kaiser Permanente Database



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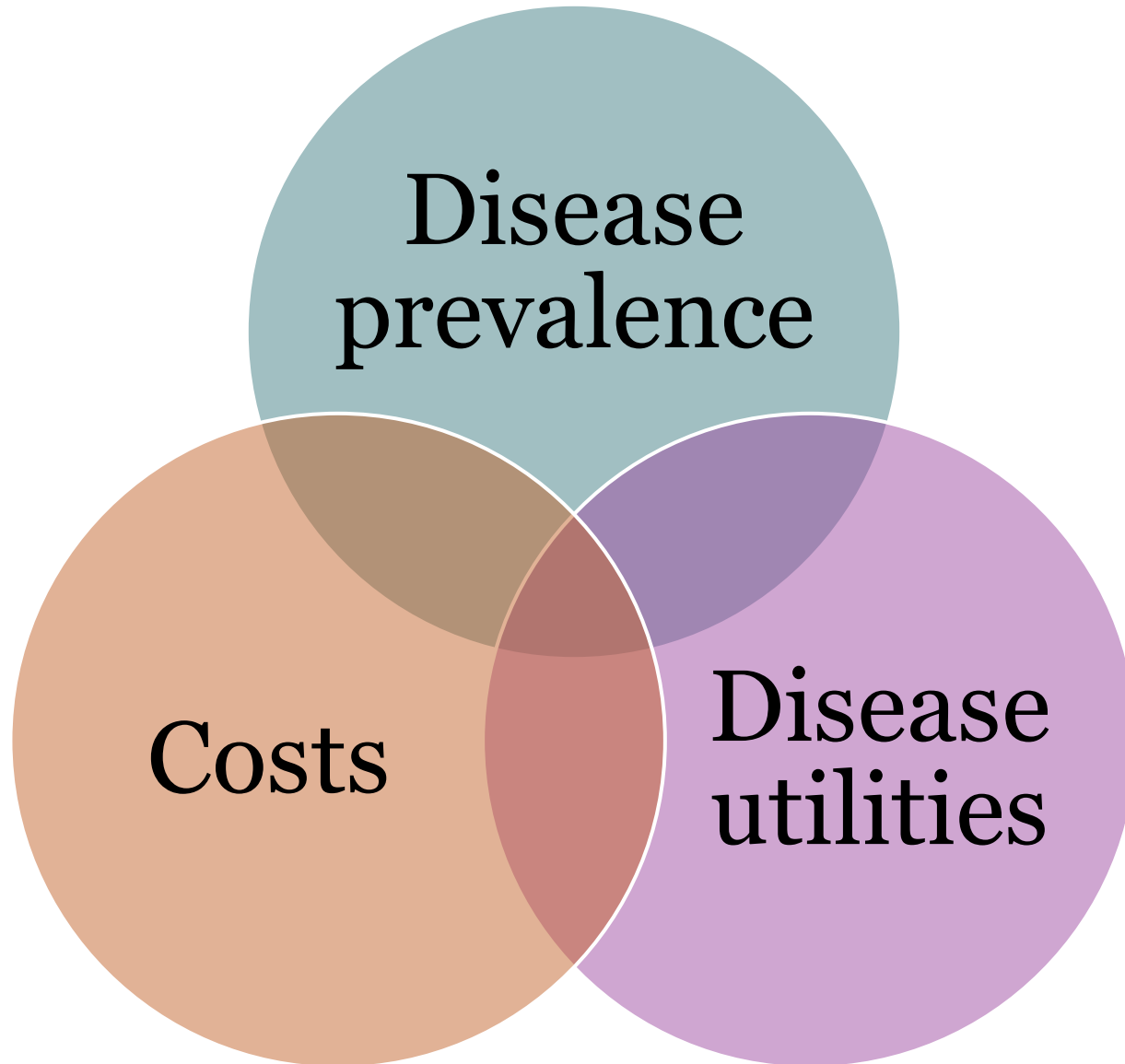
Utilization of large databases/cohorts

- Identification of novel associations
- Pattern recognition.
- Disease predictors
- Hypotheses generation for further cohort studies and clinical trials.



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Painpoints/Needs

- More efficient data mining and better utilization of current data repository in NSC.
- Better quality outcome data at multiple time points.
- Biobanking in terms of skin/blood specimens.
- Disease utilities in the local context
- Models design, decision trees in Dermatology for cost effective analysis



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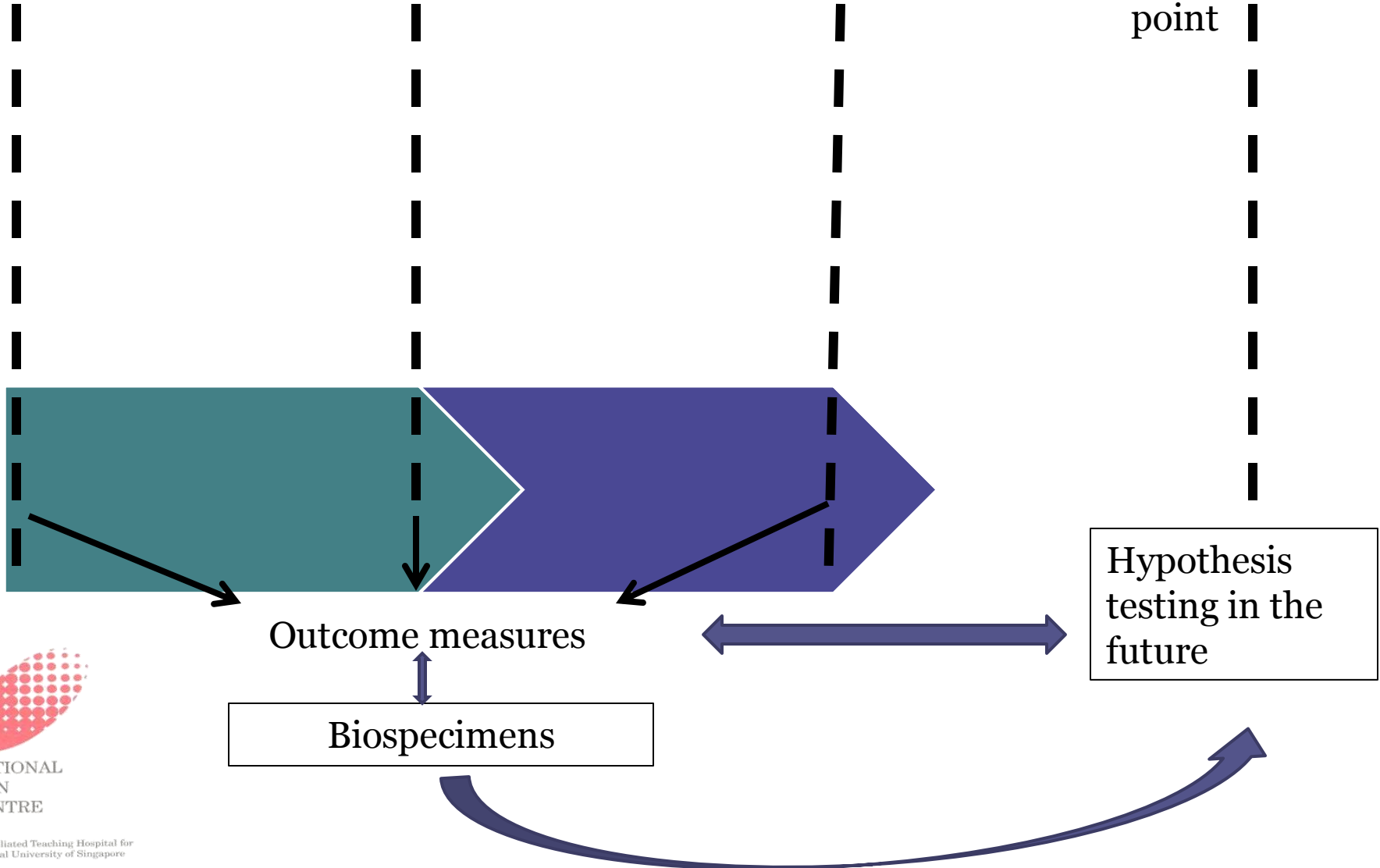
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Start of study cohort

Follow-up

Follow-up

Future time point



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My wishlist

- Create disease databases and long term follow-up cohorts.
- Machine learning to mine free text data from EMR.
- Collaborate with data scientists, epidemiologists, biostatisticians, health economists and basic science researchers on projects in dermatology.
- Dermatology related data collection in national level cohort studies.

Summary

- Big Data era is here.
- Data collection methods.
- Improve quality of data.
- Innovating with the data.
- Translating this data to better outcome and cost effective assessments.



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Thank you

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